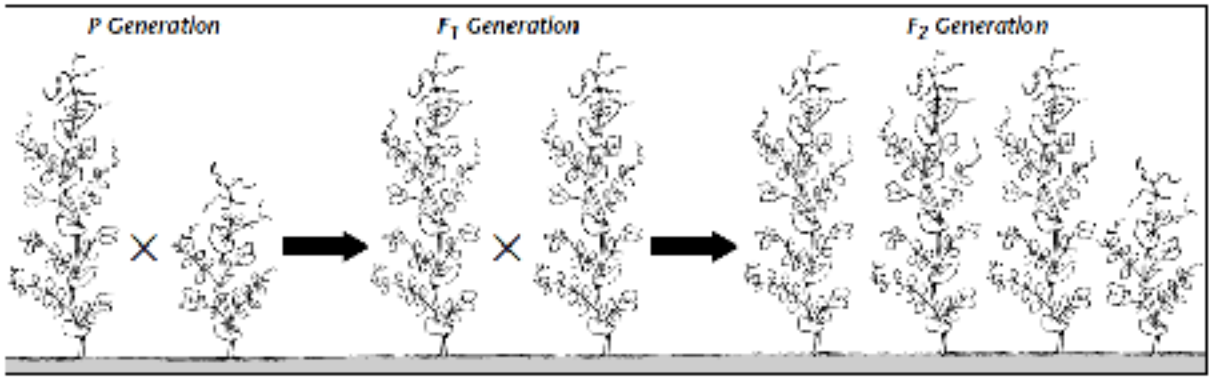
Mendel's Work Review

Name: _____

Date: _____ Score: _____

Part 1: Mendel's Pea Plants

Study the diagram. Then answer the following questions on a separate sheet of paper.



1. What trait in pea plants is being studied in the cross above?

2. What are the two alleles of this trait?

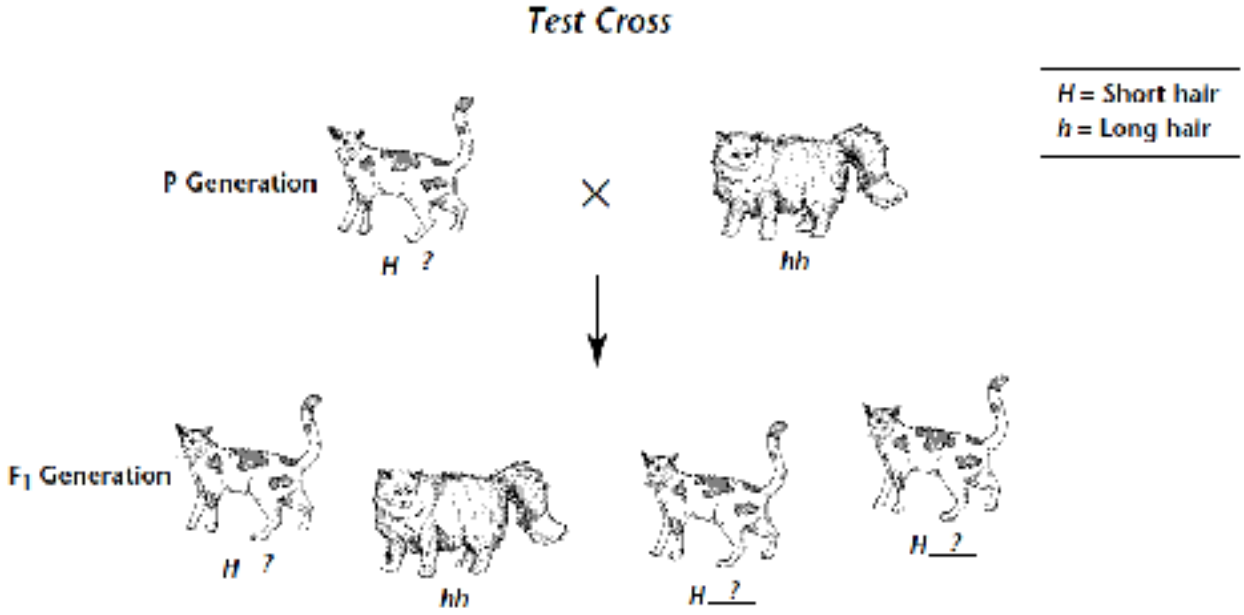
3. Which allele is the dominant allele? Explain how you know.

4. Which allele is the recessive allele? Explain.

5. What alleles do the F1 offspring have? Explain which allele was inherited from which parent.

Part 2: Crossing Cats

When an organism has a trait controlled by a dominant allele, it can either be a hybrid or a purebred. To find out which, geneticists can use a test cross. In a test cross, the organism with the trait controlled by a dominant allele is crossed with an organism with a trait controlled by a recessive allele. If all offspring have the trait controlled by the dominant allele, then the parent is probably a purebred. If any offspring has the recessive trait, then the dominant parent is a hybrid. Study the test cross below, then answer the questions.



1. Is the long-haired cat in the P generation a hybrid or a purebred? Explain your answer.

2. Is the short-haired cat in the P generation a hybrid or a purebred? Explain your answer.

3. If the short-haired cat in the P generation were purebred, what would you expect the offspring to look like?

4. In horses, the allele for a black coat (**B**) is dominant over the allele for a brown coat (**b**). A cross between a black horse and a brown horse produces a brown foal. Is the black horse a hybrid or a purebred? Explain.

5. In guinea pigs, the allele for a smooth coat (**S**) is dominant over the allele for a rough coat (**s**). Explain how you could find out whether a guinea pig with a smooth coat is a hybrid or a purebred.